UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, ILLINOIS 60604

DATE: OCT 6 2016

SUBJECT: CLEAN AIR ACT INSPECTION REPORT
Cottonwood Hills Recycling and Disposal Facility

FROM: Linda H. Rosen, Environmental Engineer
AECAB (IL/IN)

THRU: Nathan Frank, Section Chief
AECAB (IL/IN)

TO: File

BASIC INFORMATION

Facility Name: Cottonwood Hills Recycling and Disposal Facility

Facility Location: 10400 Hillstown Road, Marissa, Illinois 62257

Date of Inspection: March 16-17, 2016

Lead Inspector: Linda H. Rosen, Environmental Engineer

Other Attendees:
1. Ken Ruffatto, Environmental Engineer, U.S. EPA
2. Tom Wright, Mechanic, Cottonwood
3. Bill Raynor, Operations Manager, Cottonwood
4. Mike McElvain, Monitoring Technician, Waste Management

Purpose of Inspection: Cottonwood Hills Recycling and Disposal Facility (Cottonwood) was inspected with respect to Clean Air Act (CAA) requirements. The facility has been the subject of a citizen complaint.

Facility Type: Cottonwood is a municipal solid waste landfill (MSW) that receives some construction, demolition and special wastes.

Regulations Central to Inspection: Cottonwood is subject to the New Source Performance Standards for Municipal Solid Waste Landfills, 40 C.F.R. Part 60, Subpart WWW, 40 C.F.R. Part 63, Subpart AAAA and a Title V permit.

Arrival Time: 2:50 on March 16; 8:45 am on March 17
Departure Time: 4:20 pm on March 16; 10:45 am on March 17

Inspection Type:
☒ Unannounced Inspection
☐ Announced Inspection

OPENING CONFERENCE

☒ Credentials Presented
☒ CBI warning to facility provided

The following information was obtained verbally from Bill Raynor or Mike McElvain unless otherwise noted.

Process Description:

The landfill started up in 2000 with Phase 1. The life of the landfill is 2054. The landfill is about 225 acres and takes in about 1,500 tons of waste per day. The facility has a footprint photograph that is taken yearly. Mr. Raynor did not know the amount of waste currently in the landfill. Last December, the facility began Phase 5 Southwest. Denny (Ernest) Dennison is the landfill's engineer, who also handles Milam. He was on vacation at the time of the inspection.

The following areas are closed: Phase 1 corner and side slope, which was closed five to six years ago; and Phase 2 and 3 side slopes. The closed areas have a final cover consisting of three (3) feet of clay and three (3) feet of protective cover (dirt). On the active area (Phase 5), they place a daily cover of canvax blankets and dirt. The parts of the landfill that are not active or closed have an interim soil cover. The landfill liner is five (5) foot of clay and is not synthetic.

The landfill receives some construction and demolition waste as well as some special waste such as asbestos.

The facility operates an open flare with a blower that was installed sometime after 2000. It was put in when the gas wells were installed. Phases 1-4 are tied into the flare but Phase 5 is not controlled by the flare. If the flare shuts down, the lid on the system is shut closed and the valve shuts off to prevent uncontrolled venting.

Regarding the surface monitoring, Mike McElvain is a Waste Management employee who does the surface monitoring scans at Cottonwood and Milam Recycling. Mr. McElvain recently completed the March quarterly scan. Mr. Raynor did not know the path taken when monitoring. He only knows that there haven't been exceedances for quite some time because if there were, he would have been notified.

The facility collects leachate at the lift and sends it to the local waste water treatment plant.

The facility has Weaver Boo conducting hydrogen sulfide and methane monitoring around the town. The type of equipment used is a gnome meter. There are also probes placed at the perimeter of the landfill to measure methane.

Staff Interview:

Mr. Raynor said that winds coming from the southwest into Marissa are rare. If there is an odor, it is a sulfur smell and that's why they do the additional H_2S monitoring. They send the monitoring data to the Illinois EPA. They check for odors daily. He said they have received no direct complaints about odors from the landfill.

On March 17, Ken asked Mike McElvain whether Mike makes an effort to conduct monitoring around areas where visual observations indicate there could be exceedances (for example, where there are cracks). Mike said that he just follows the pre-determined serpentine path. The portable FID is attached to the back of his four wheeler and set at a point 2-4 inches from the ground. He monitors the perimeter and then the Phase 1-4 area down to the crest. He stops about every 30 meters to take readings.

TOUR INFORMATION

EPA toured the facility: Yes

On March 16, 2016, Bill Raynor took us on a tour of the landfill. Photo 1, IMG_0926, shows a perimeter gas well, GP-01, located in the photo to the right of the flare. Photo 2, IMG_0927, shows the flare. Photo 3, IMG_0928, shows the header to the flare. Photo 4, IMG_0929, shows the blower. Photo 5, IMG_0930, shows the active area.

On March 17, 2016, Mr. Raynor wasn't immediately available so Mr. Wright took us out to the flare again where we took more pictures and a video. I recorded the flare parameters: 1028 to 1054 standard cubic feet per minute (scfm), 104.3 degrees Fahrenheit (F) gas temperature; 1403 degrees F flare temperature; minus 58.9 water column (w.c.) inlet pressure. Ken observed that there was a brown plume coming off the end of the flame at the flare. This could not be seen in the photos taken of the flare, however. We also heard the sound of liquid in the header line indicating the buildup of condensate. Ken mentioned the issue of condensate buildup to Mr. Raynor and he admitted that the lines needed to be flushed out. After visiting the flare we returned to the office to wait for Mr. Raynor.

After Mr. Raynor arrived, Mike McElvain arrived and they both took Ken and I up to the Phase 1-4 area.

Data Collected and Observations:

After leaving the facility on March 16, we drove through Marissa. We observed a strong sulfur/organic odor near the Marissa Junior-Senior High School located at 300 School View Drive in Marissa.

On March 17, coming towards the facility northwest on Hwy 13, we smelled an organic odor right before the turn off to Hillstown Drive.

Field Measurements: were taken during this inspection.

- Ken Ruffatto conducted surface scanning in the Phase 1-4 area on March 17. Ken paid particular attention to depressed areas which occurred around the wells, and areas where there were cracks.

On March 21-22, 2016, Physical Scientists from EPA's Air Monitoring and Analysis Section conducted monitoring to evaluate ambient air concentrations of hydrogen sulfide and methane near Cottonwood Landfill. The results are memorialized in a report, dated September 29, 2016, which is attached.

CLOSING CONFERENCE

Requested documents:

- Quarterly surface scan emission monitoring results
- Path taken for surface scanning
- Wellhead monitoring data
- Flare downtime reports
- Gas Probe Monitoring results
- Monitoring conducted in and around Marissa, IL for H_2S

Concerns: We told Mr. Raynor about the odors we smelled on March 16 and March 17.

SIGNATURES

Lead Inspector: _____ Date: 10/4/16

Section Chief: _____ Date: 10/5/16

Facility Name: Cottonwood Hills Recycling and Disposal Facility
Facility Location: 10400 Hillstown Road, Marissa, Illinois
Date of Inspection: March 17, 2016

APPENDICES AND ATTACHMENTS

- Field Measurements, Appendix A
- Media Appendix B
- Cottonwood Landfill GMAP H_2S/CH_4 Air Monitoring Appendix C

Facility Name: Cottonwood Hills Recycling and Disposal Facility
Facility Location: 10400 Hillstown Road, Marissa, IL
Date of Inspection: March 17, 2016

APPENDIX A: FIELD MEASUREMENT DATA

March 17, 2016 FID Calibration Data

We started the calibration at 8:07 am at a location offsite but close to the facility property. The results are shown below along with the post monitoring verification which was done offsite and close to the facility right after leaving the facility at 10:45 a.m.:

Calibration Gas	Morning Calibration Check	Post Monitoring Verification
Air	-0.8 ppm	-2.5 ppm
500 ppm methane in air	500 ppm	490 ppm
2000 ppm methane in air	1,995 ppm	1,968 ppm
10,000 ppm methane in air	0.99 %	1.03 %

In addition, the upwind background concentration was -2.2 ppm and the downwind background concentration was -1 ppm. The wind was from the west, 5-10 miles per hour.

March 17, 2016 Surface Scan Results

All monitoring was conducted by Ken Ruffatto. All readings were taken during the morning of March 17, 2016 shortly after 9:40 a.m. Throughout the landfill, Ken took readings that did not exceed 500 ppm. The exceedances that we found were located near wells or depressed or cracked areas, as follows.

Location	Reading	Associated Photo
Phase 3 area Cracked area by Well 77	1050 ppm	8-IMG_0933.JPG 9-IMG_0934.JPG
Phase 2 area, 6-7 feet West of Well 14R	6200 ppm	11-IMG_0936.JPG 12-IMG_0937.JPG 13-IMG_0938.JPG
Phase 2 area Foot of Well 80R In eroded area	3864 ppm	14-IMG_0939.JPG 15-IMG_0940.JPG

Appendix B: Media Appendix

Below is a list and description of photos taken during the inspection along with an attached CD. All photos were taken on March 16-17, 2016 by Linda H. Rosen. All photos are on the g: share drive under Air Enforcement and Compliance Assurance Branch, IL/IN, LRosen.

Photo Number	Date Taken	Description
1-IMG_0926.JPG	3/16/16	Gas Perimeter Well 01 (GP-01) and Flare
2-IMG_0927.JPG	3/16/16	Flare
3-IMG_0928.JPG	3/16/16	Flare header and blower
4-IMG_0929.JPG	3/16/16	Flare header and blower
5-IMG_0930.JPG	3/16/16	Phase 5 active area
6-IMG_0931.JPG	3/17/16	Flare Flame
7-IMG_0932.JPG	3/17/16	Well 77
8-IMG_0933.JPG	3/17/16	Depressed area near Well 77; exceedance
9-IMG_0934.JPG	3/17/16	Depressed area near Well 77; exceedance
10-IMG_0935.JPG	3/17/16	Well 14R
11-IMG_0936.JPG	3/17/16	6-7 feet west of Well 14R; exceedance
12-IMG_0937.JPG	3/17/16	6-7 feet west of Well 14R; exceedance
13-IMG_0938.JPG	3/17/16	6-7 feet west of Well 14R; exceedance
14-IMG_0939.JPG	3/17/16	Well 80R; exceedance
15-IMG_0940.JPG	3/17/16	Well 80R; exceedance
16-IMG-0941.JPG	3/17/16	Overview of Phase 1-3
17-IMG-0942.JPG	3/17/16	Phase 5 taking photo from Phase 3 area
18-IMG-0943.JPG	3/17/16	Well 14R showing depressed area
19-IMG_2025.MOV	3/17/16	Movie of Flare

Appendix C

SUBJECT: *Cottonwood Landfill GMAP H_2S/CH_4 Air Monitoring*

PREPARED BY:
Marta Fuoco MF 09/29/16
Physical Scientist
Air Monitoring and Analysis Section

FIELD MONITORING CONDUCTED BY:
Scott Hamilton
Physical Scientist
Air Monitoring and Analysis Section

Bilal Qazzaz
Physical Scientist
Air Monitoring and Analysis Section

FIELD MONITORING REQUESTED BY:
Linda Rosen
Environmental Engineer
Air Enforcement and Compliance Assurance, IL/IN Section

DATES OF FIELD MONITORING:
March 21-22, 2016

REPORT AUTHORIZED BY:
Michael S. Compher 9/29/16
Michael Compher
Supervisor
Air Monitoring and Analysis Section

USEPA R5 monitored to evaluate the ambient air concentrations of hydrogen sulfide (H_2S) and methane (CH_4) near Cottonwood Landfill on March 21-22, 2016.

Region 5's Geospatial Monitoring of Air Pollution (GMAP) uses a Picarro G2204 cavity ringdown spectroscopy (CRDS) analyzer, SN 2267-BFADS2013. The data are integrated with global positioning system location information and meteorological parameters when available to quantify air pollutant concentrations. Additional information can be found in the SOP and March 26, 2015 Quality Assurance Project Plan (GMAP SOP R5-ARD-0002-r1; QAPP V2 0 2015-03-25). For short term H_2S air monitoring data, the monitored concentrations are frequently compared to ATSDR's acute inhalation Minimal Risk Level (MRL) of 70 ppb (ATSDR 2006) or other state or local levels. CH_4 concentrations are frequently compared to ATSDR's *de minimis* level for screening purposes of soil gas concentration, 1.25% (12,500 ppm) or other state or local levels.

Measurements were taken on March 21-22, 2016. Table 1 depicts maximum 1 second measured concentrations of CH_4 (2.4 ppm). The H2S channel did not pass post sampling QC checks and the data was subsequently invalidated.

Concentrations above the detection limit of CH_4 were measured outside the fenceline of the facility; the CH_4 maximum value of 2.4 ppm was found to be below ATSDR's *de minimis* level for screening purposes of 1.25% (12,500 ppm) for soil gas concentrations.

Table 1: Maximum Values

Cottonwood Landfill	Max
H_2S (ppb)	Did not pass QC checks
CH_4 (ppm)	2.4